



HUGHSON
JOHN DAVIS CO.

Eclipse
STEAM SPECIALTIES

ILLINOIS
ENGINEERING
COMPANY

CHICAGO TORONTO

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Eclipse

STEAM SPECIALTIES

Catalog D

ILLINOIS ENGINEERING CO.

SUCCEEDING

HUGHSON STEAM SPECIALTY CO.

Successor in the Manufacture of
The Eclipse Steam Specialties
of the John Davis Company
Chicago

Sales Office: 1723 First National Bank Building
Telephone: Central 4771.

Factory: 5021-5023 South State Street
Telephone: Oakland 4583.

Chicago



IMPORTANT

All straight size valves 3-inch and larger furnished flanged, smaller sizes screwed. Increasing outlet valves 2 x 4 inch and larger flanged, smaller sizes screwed, unless otherwise ordered. Inlet flange on increasing outlet valves extra heavy unless otherwise specified. Give explicit drilling instructions for flanged valves when ordering.

A careful reading of the catalogue should enable one to select the proper device for the purpose it is to be used; but we have found that a great many overlook this and the result is that they do not get the proper device.

For Vacuum systems such as Warren Webster, Paul, and Illinois Engineering Co., there is no valve the equal of our figure 71 which we make with the inlet and outlet the same size and also with an increasing outlet. This valve is made seated and with a spring device to adjust itself automatically to the variation in temperature.

For low pressure heating other than Vacuum system our figure 81 Valve is the ideal valve. This valve is designed to reduce for any boiler pressure to a pressure from 15 lbs. to 1 lb.

For reducing steam pressure from any initial pressure not exceeding 200 lbs. to a pressure anywhere from 5 to 60 lbs. where the flow is constant, such as for heating, we recommend our figure 110 Valve.

For reducing the pressure from 250 lbs. or less down to anywhere between 15 to within 25% of the full boiler pressure use the figure 91 Valve. This is also the best valve for supplying steam where the flow is not constant, such as for engines, pumps, etc. This valve is a seated valve and does not allow the steam to creep up unless the seat becomes cut or scale becomes embedded in same.

BACK PRESSURE VALVES

When ordering Back Pressure Valves be sure and advise if valve is to be used in a horizontal or vertical position, how many pounds back pressure it is intended to carry, also whether valve is to be used as a relief valve in a condensing plant or as a Back Pressure Valve or as either in season.

Each and every device manufactured by us is given a thorough test as near the conditions it will work at, before leaving our factory.

Eclipse



Fig. 110.

"ECLIPSE" REDUCING VALVE

This is our OLD RELIABLE No. 110 ECLIPSE REDUCING VALVE, for steam only.

This is the oldest regulating Valve on the market and while a few changes have been made in its construction, it is practically the same as originally designed.

It is very simple, having no complicated parts, springs or packing.

For controlling steam pressure, where flow of steam is nearly even, as on tanks, steam heating, etc., it has no superior and will work to perfection with pressure up to 200 pounds, reducing to 5 to 60 pounds. For other duties, see our Figs. Nos. 81, 71, 211, 91, 95 and 181 Valves.

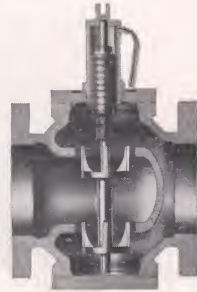


Fig. 110.

Give boiler pressure and pressure to be reduced to, and for what purpose the reduced steam is used.

Price List and Table of Dimensions.

Fig. 110—Valve

Diameter of Ports.....	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Face to Face, Standard.....					7	7 1/4	9 1/4	10	11	11 3/4	11 3/4	12 3/4	13 1/2	14 1/2	15	16 1/4	26
Diam. of Standard Flanges...					6	7	7 1/2	8 1/2	9	9 3/4	10	11	12 1/2	13 1/2	15	16	19
Face to Face, Extra H'vy.....					7 1/2	7 3/4	10	10 3/4	11 1/2	12	12	13	14 1/4	15 1/2	19 1/4	19 1/2	27 1/2
Diam. of Ex. Heavy F'lgs.....					5 1/2	7 1/2	8 1/2	9	10	10 1/2	11	12 1/2	14	15	16	17 1/2	20
Face to Face of Screw'd Ends	6 3/4	6 3/4	6 1/2	6 3/4	7	7	9 1/4	10	10 3/4	11 3/4	11 3/4	12 3/4	14 1/2	15 1/2	200	200	250
Approximate Weight.....lbs.	9	16	18	20	22	23	35	42	52	55	60	70	85	100	145	165	250
Price	22.00	23.00	24.00	25.00	30.00	30.00	42.50	52.50	60.00	70.00	75.00	100.00	125.00	145.00	200.00	275.00	350.00

Prices on Steel or Semi-Steel body Valves for super-heat on application, also for extra heavy valves.

For pressures above 125 pounds use Fig. 91, page 12.

Always state if Valve is to be screwed or flanged. Lever weights are not included in weight of Valve.



ECLIPSE LOW PRESSURE REGULATING VALVE

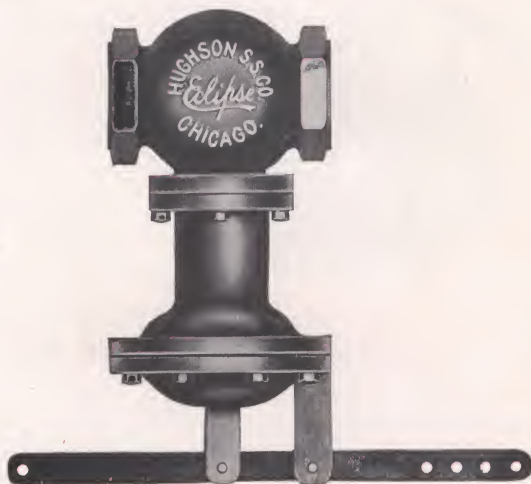


Fig. 81.

This Valve is especially adapted for low pressure heating systems, and is very sensitive and absolutely reliable, and is intended for reducing boiler pressure of not above 200 pounds to a pressure varying between one and fifteen pounds. For vacuum systems use our Fig. 71 Valve.

The Valves are also furnished with increased outlets to allow for the quick expansion of steam.

For spring controlled Valve of this type see Fig. 61, shown on page 18.

Price Lists and Tables of Dimensions

Fig. 81—Valves Straight sizes

Diameter of Ports.....	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Face to Face, Standard.....					7	7 1/4	9 1/4	10	11	11 1/4	11 1/4	12 1/4	13 1/2	14 1/2	15	16 1/4	18
Diam. of Standard Flanges...					6	7	7 1/2	8 3/4	9	9 1/4	10	11	12 1/2	13 1/2	15	16	19
Face to Face, Extra Heavy...						7 1/4	7 3/4	10	10 3/4	11 1/2	12	12	13	14 1/4	15 1/2	19 1/4	27 1/2
Diam. of Ex. Heavy Flges...						6 1/2	7 1/2	8 1/4	9	10	10 1/4	11	12 1/2	14	15	16	20
Face to Face of Screw'd Ends	6 1/4	6 1/4	6 1/2	6 3/4	7	7	9 1/4	10	10 3/4	11 1/4	11 1/4	12 1/4	12 1/4	15	18	21	27 1/2
Approximate Weight (lbs.)...	25	26	28	30	33	35	70	80	100	110	125	150	165	180	210	220	275
Price	23.00	23.00	24.00	25.00	30.00	35.00	42.50	52.50	60.00	70.00	75.00	100.00	125.00	155.00	275.00	275.00	350.00

Fig. 81—Valves, Increased Outlet

Size of Valve.....	1x2	1 1/4x2 1/2	1 1/2x3	2x4	2 1/2x5	3x6	4x8	5x10	6x12
Face to Face.....	6 3/8	6 1/8	6 3/4	9	9 1/4	10 1/2	11 1/2	13 1/2	15
Center to Extreme Bottom.....	14 1/4	14 1/4	14 1/4	17 1/2	17 3/4	20	20 3/4	21 3/4	26 3/4
Center to Extreme Top.....	2 1/8	2 3/8	2 1/8	5 1/2	5 1/2	6	6 3/4	7 3/4	9 3/4
Diameter of Diaphragm.....	7	7	7	9	9	13	13	13	13
Inlet Flange, Extra Heavy.....				2x6 1/2	2 1/2x7 1/2	3x8 1/4	4x10	5x11	6x12 1/2
Outlet Flange, Standard.....				4x9	5x10	6x11	8x13 1/2	10x16	12x19
Approximate Weight (lbs.)...	35	40	45	60	85	100	135	200	300
Price	\$33.00	\$42.50	\$53.50	\$72.00	\$96.00	\$126.00	\$187.50	\$242.00	\$325.00

Weights are not included in weight of Valves.

Give boiler pressure, reduced pressure and for what purpose reduced steam is used.

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"ECLIPSE" VACUUM PRESSURE REGULATING VALVE

For use in atmospheric, vacuum or very low pressure Heating Systems.

The Valve is constructed with an independent diaphragm, which is actuated by pressure taken from low pressure side at a distance from the Valve at a point of regulation designated by the company installing the system.

It is very sensitive and



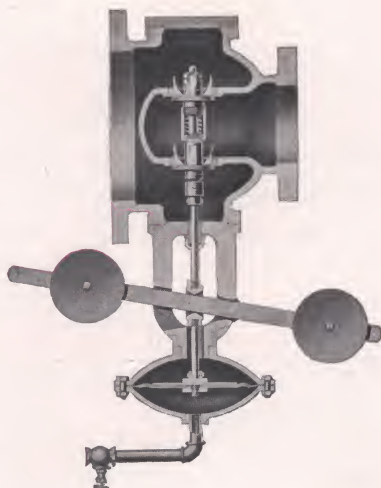
Fig. 71. Valve with Increased Outlet

will promptly respond to the slightest variation in pressure.

ADJUSTABLE PISTON

The Valve is a two-seated Valve, so constructed that the seats adjust themselves to any change of temperature, consequently they are always tight under varying pressures. This is a device that no other Valve of this kind on the market has.

Endorsed and used by all the companies installing vacuum systems of heating.



Price List and Table of Dimensions

Size of Valve	1x2	1½x2½	1½x3	2x4	2½x5	3x6	4x8	5x10	6x12
Face to Face	6¾	6½	6¾	9½	9½	10½	11½	13½	15
Center to Extreme Bottom	14¼	14¼	14¼	17½	17¾	20	20¾	21¾	26¾
Center to Extreme Top	21¾	2¾	2¾	5½	5¾	6	6¾	7¾	9¾
Diameter of Diaphragm	7	7	7	9	9	13	13	13	13
Inlet Flange, Extra Heavy				2x6½	2½x7½	3x8¾	4x10	5x11	6x12½
Outlet Flange, Standard				4x9	5x10	6x11	8x13½	10x16	12x19
Approximate Weight (lbs.)	48	50	52	115	120	175	200	275	365
Price	\$33.00	\$42.50	\$53.50	\$72.00	\$96.00	\$126.00	\$187.50	\$242.00	\$325.00

Weights are not included in weight of Valves. Larger sizes, prices on application. See following pages relative to ordering.

Eclipse

ECLIPSE VACUUM REGULATING VALVE



Fig. 71.

Inlet and Outlet same size.

This valve is just the same as the one with the increased outlet on preceding page. There are times and places where straight sizes of these valves must be used.

Price List and Table of Dimensions.

Fig. 71—Valves, Straight Sizes

Diameter of Ports.....	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Face to Face, Standard.....					2	7 1/4	9 1/4	10	11	11 1/4	11 3/4	12 1/4	13 1/2	14 1/2	18	18 1/4	26
Diam. of Standard Flanges..					6	7	7 1/2	8 1/2	9	9 1/4	10	11	12 1/2	13 1/2	15	16	19
Face to Face, Extra Heavy..					7 1/2	7 3/4	10	10 3/4	11 1/2	12	12	13	14 1/4	15 1/2	19 1/4	19 1/2	27 1/2
Diam. of Ex. Heavy Fl'ges..					6 1/2	7 1/2	8 1/4	9	10	10 1/2	11	12 1/2	14	15	16	17 1/2	20
Face to Face of Screw'd Ends	6 1/4	6 3/4	6 1/2	6 3/4	7	7	9 1/4	10	10 3/4	11 1/4	11 3/4	12 1/4					
Approximate Weight (lbs.)..	27	29	32	35	38	75	85	110	115	135	160	175	200	225	330	300	470
Price	25.50	28.50	31.00	32.50	45.50	52.00	75.00	75.00	95.00	97.00	130.00	175.00	227.00	350.00	350.00		

We advise making the connection with the controlling pipe, so that there will be no chance to syphon the condensation from the diaphragm casing. If necessary, make a loop; if the condensation is withdrawn, not only will rubber vulcanize, but the Valve will operate too quickly. When ordering

give full particulars, and if possible give us a sketch of piping and we will advise at what point to make connection with the controlling pipe. We do not furnish the Globe Valve on the controlling pipe. Flanges, bolts and gaskets are extra. Valves drilled to template without extra charge.

The area of the ports in Eclipse Vacuum Valves is equal to one-half the diameter of the pipe. As steam flowing from a high pressure to a lower pressure is constant from 0 to 58 per cent of the initial pressure (75 pounds absolute pressure will discharge 65 pounds of steam into atmosphere or against 43 pounds pressure through an opening of one square inch), we close in the ports to avoid wire drawing and relieve the Valve of unnecessary work. A Valve set to close with one-half pound pressure over atmosphere will open full only when the weight of moving parts of Valve overcomes the pressure on the diaphragm, which can be regulated by placing the weights on valve in certain positions and will vary slightly on different sizes of Valves. In the case of a $2\frac{1}{2}$ by 5-inch Valve will open full with four ounces of pressure; on a 4 by 8-inch at about three ounces; if the Valve is set to close with one-half pound. The Valve will supply all the steam that the pipe will carry from an initial pressure of not less than ten times the pressure carried on heating system. The higher the initial pressure, the less the Valve will open.

Rule for Figuring Size of Vacuum Valve

The Eclipse Vacuum Valves are designed to maintain an even pressure in heating apparatus within their capacity. To find the size of Valve required to supply a given amount of radiation, one rule is to take $1/100$ of the total number of square feet of radiation to be supplied. From this sum extract the square root and the answer will be the size of Valve required, regardless of initial pressure and not figuring exhaust steam from engines which may be available. (Example—600 feet radiation; $1/100$ 6, square root of 6, 2.5; therefore, a $2\frac{1}{2}$ -inch Valve should be used for 600 feet of radiation.)

Eclipse



Fig. 181.

THE "CLIMAX" REGULATING VALVE

Is especially adapted for use in railway heating service and for high pressure work in general, also where it is desired to have an absolutely tight Valve.

These Valves are made of the very best government metal, and the workmanship is of the best. As in the case of all our Valves, each Valve is thoroughly tested before it leaves the factory.

If kept reasonably clean of dirt and scale, there will be no danger of sticking, as all parts are loose fitting and properly protected.

The Valves are made to stand 250 pounds working pressure and will regulate from 10 pounds to any desired point within ten per cent. of the boiler pressure.

These Valves are also adapted for gas, air, water, or any easy flowing clear liquid, but are not adapted for super-heated steam or over 500 degrees of heat.

Price List and Dimensions of "Climax" Valves

Size	Height from Center to Extreme Top	Face to Face	Diameter of Flange	Approximate Weight	Price
$\frac{3}{4}$	8 $\frac{1}{2}$	4 $\frac{3}{4}$..	12	\$25.00
1	8 $\frac{1}{2}$	4 $\frac{3}{4}$..	12	26.00
1 $\frac{1}{4}$	9	5	..	16	28.00
1 $\frac{1}{2}$	9	5	..	16	35.00
2	10	6	6	25	44.00
2 $\frac{1}{2}$	10	6 $\frac{1}{2}$	7	29	57.00

One-half-inch to two-inch furnished with unions if desired, 2 $\frac{1}{2}$ -inch and larger flanged.

This Valve is now in use on a number of leading railroads.

We furnish these valves with inlet smaller than outlet up to 2-inch on the outlet at special prices.

Give boiler pressures and what pressure reduced to.

CLIMAX PRESSURE REGULATOR, No. 181

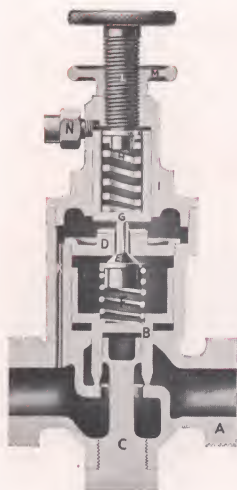


Fig. 181.

To attach and connect—Place Regulator as in cut, adjusting screw up, flow of steam indicated by arrow; see that pipe is blown out before connecting Regulator. Piping for Regulator should be properly fitted, as we have known instances where the strain of bad fitted piping has drawn Regulator out of shape, in spite of the fact that the Regulator will stand 800 pounds without damage. The valve can be used in vertical pipe when flow of steam is upwards, but it will wear out faster and work a little sluggish, as it has to force out condensation with every move. Leave outlet on top fitted with $\frac{1}{8}$ -inch union open to air, or pipe off from it to some drain or sewer.

If Regulator is used for running engines, or where flow of steam is very irregular, it should be placed far enough away from where the steam is wanted to form some sort of reservoir; for instance, the pipe between Regulating Valve and an Engine should have about the

same capacity as the cylinder. A stop valve should be applied on the high pressure side of the Regulator; closed when no steam is used and wide open when steam is passing through.

Do not use cement or white lead for piping, but oil or graphite. Sediment or grit will stop the Regulator from working properly. If Regulator should act sluggish remove hood (I) carefully, see that piston is working easy, clean and take out plate (D), check valve and spring, after which pull out Piston (B), clean and carefully put back, taking care to have everything clean. Do not use any oil or white lead, but put everything back clean. If Regulator is hot while taking apart, cool a little with cold water and it will come apart easily.

A—Body. B—Valve Piston. C—Dashpot Plunger. D—Plate. E—Check Valve. F—Check Valve Spring. G—Controlling Piston. H—Controlling Spring. J—Bonnet. K—By-Pass. L—Adjusting Screw. M—Lock Nut. N—Union (Drip).

In some cases it is well to put a small Relief Valve on low pressure side, set at about five pounds more than pressure wanted, to avoid accidents.

To operate: When first starting, screw adjusting screw back, so there is no tension on it, open stop valve a little and warm thoroughly, then open stop valve full; then screw down adjusting screw carefully until Regulator opens, allowing a little time for the Regulator to warm up, then screw down until desired pressure is obtained, and lock with locknut. Do not disturb Regulator afterwards except when necessary, but open and close with stop valve.

We can furnish repairs, but it is much better to send the valve to us if repairs are needed. Our Climax Valve is absolutely steam tight when leaving factory, and is tested in every respect.

When ordering please give boiler pressure, pressure wanted on reduced side, and give particular conditions valve has to work under, as sometimes a slight operation on regulator will make it perform a certain service much better.

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Fig. 91.

THE HUGHSON "ECLIPSE" REGULATING VALVE



Fig. 91.

This Valve is adapted for controlling steam pressure from any initial pressure up to 250 pounds to a lower pressure, not less than 15 pounds.

This is an ideal Valve to use where flow of steam is irregular and where it is required that the reduced pressure be kept constant as on engines, pumps, etc.

This Valve also fitted Eclipse Adjustable Piston. See page 7 for description.

Price List and Dimensions Hughson Eclipse Regulating Valves No. 91

Diameter of Port.....	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
Face to Face, Screwed.....	7	7¼	9¼	10	11	11¼	11½	12¾	13½	16½	18	20¾	26
Face to Face, Standard.....	7	7¼	9¼	10	11	11¼	11½	12¾	13½	14¼	17½	19¼	22
Face to Face, Ex. Heavy.....	7½	7¾	10	10¾	11½	12	12	13½	14¼	17½	19¼	22	27½
Dia. of Standard Flanges.....	6	7	7½	8½	9	9¾	10	11	12½	14	15	16	19
Dia. of Ex. Heavy Fl'ges.....	6½	7½	8¾	9	10	10½	11	12½	14	15	16	17½	20
Center to Extreme Top.....	11½	11½	16	16	17	17½	18	21	22	27	28	29	40
Center to extreme Bottom.....	3¼	4¼	4¾	5	5¼	5¾	6	6¾	7	9	9¼	10¼	13½
Size of Ports.....	1½	1½	2½	2½	2¾	3	3	3¾	3¾	5	5	6½	7¼
Top and Bottom Fl'g. Dia.....	4½	4½	6½	6½	6½	6½	6½	7½	7½	9¾	9¾	12	13
Approx. Weight (lbs.).....	20	22	80	90	100	120	150	180	280	400	550	650	950
Price	44.00		57.00	72.00	90.00	100.00	125.00	150.00	235.40	350.00	400.00	450.00	600.00

Give boiler pressure carried and also reduced pressure and for what purpose reduced steam is used.

This Valve is adapted for initial pressure as high as 250 pounds saturated steam.

For high pressure service in smaller size use the Climax Valve, page 10.

Steel body Valves for super-heat. Prices on application.



Fig. 95. Patented.

THE HUGHSON "ECLIPSE" LOCOMOTIVE AND MARINE PRESSURE REGULATING VALVE

This Valve is especially adapted for controlling and regulating the steam for car heating service, and on vessels where the rocking would disturb the weight and lever on regular pattern. By reference to cuts it will be seen that the Valve has practically only one working part.

The metal used in the construction of these Valves is of the very best and will not steam cut at 250 pounds pressure. There are no diaphragms to break and no stuffing boxes or dash pots to be packed and kept clean.

After a most thorough test this Valve has been adopted by a number of the leading railroads. The Valves will be furnished screwed ends, male or female union, or according to specifications.

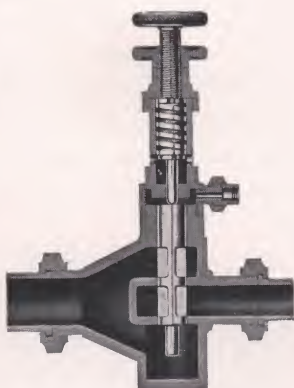


Fig. 95. Sectional View.

Price List

Size, Brass.....	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Price	\$18.00	\$22.00	\$28.00	\$35.00	\$44.00



"ECLIPSE" REGULATING VALVE. FOR MARINE SERVICE



Fig. 211.

The number 211 Valve is our regular 110 Valve fitted with spring for Marine service. The use of the spring in place of weight prevents any jumping of the lever and thereby throwing the full steam pressure on the reduced side.

FOR MARINE WORK

When ordering specify Pressure carried and what it is to reduce to.

Price List and Table of Dimensions

Diameter of Ports.....	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Face to Face, Standard.....					7	7 1/4	9 1/4	10	11	11 1/4	11 3/4	12 3/4	13 1/2	14 1/2	18	18 1/4	26
Diam. of Standard Flanges..					6	7	7 1/2	8 1/2	9	9 1/4	10	11	12 1/2	13 1/2	15	16	19
Face to Face, Extra Heavy..					7 1/2	7 3/4	10	10 3/4	11 1/2	12	12 1/2	13	14 1/4	15 1/2	19 1/4	19 3/8	27 1/2
Diam. of Ex. Heavy Fl'ges..					3 1/2	7 1/2	8 1/4	9	10	10 1/2	11	12 1/2	14	15	16	17 1/2	20
Face to Face of Screw'd Ends	6 1/4	6 1/4	6 1/2	6 3/4	7	7	9 1/4	10	10 3/4	11 1/4	11 3/4	12 3/4	14 1/2	16 1/2	200	200	256
Approximate Weight (lbs.)..	9	16	18	20	22	23	63	75	85	95	110	125	145	165	275	275	350
Price	22.00	23.00	24.00	25.00	30.00	35.00	42.50	52.50	60.00	70.00	75.00	100.00	125.00	185.00	275.00	275.00	350.00

For pressures above 125 pounds, special net prices on application.



THE "ECLIPSE" FAN ENGINE REGULATOR

This Valve is used to automatically control the speed of a Fan Engine. It is practically our No. 110 Valve fitted with an adjustment to regulate the speed. The Valve is placed in the feed pipe to the Engine in opposite manner as when used for a regulating valve.

The Valve is open until the pressure in boiler overcomes the weight when it closes, slowly reducing the speed of the engine; as the pressure decreases the Valve opens, allowing the engine to speed up automatically, keeping the boiler pressure near a set point. With the adjustment device the valve can be adjusted so that it cannot shut off entirely and will allow the engine to travel slowly and also will not open so wide to allow an excessive amount of steam to the detriment of the engine.

Price List and Table of Dimensions

Diameter of Ports.....	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Face to Face, Standard.....					7	7 1/4	9 1/4	10	11	11 1/4	11 3/4	12 1/4	13 1/2	14 1/2	18	18 1/4	26
Diam. of Standard Flanges.....					6	7	7 1/2	8 1/2	9	9 1/4	10	11	12 1/2	13 1/2	15	16	19
Face to Face, Extra H'vy.....					7 1/2	7 3/4	10	10 3/4	11 1/2	12	12	13	14 1/4	15 1/2	19 1/4	19 1/2	27 1/2
Diam. of Ex. Heavy Fl'gs.....					6 1/2	7 1/2	8 1/4	9	10	10 1/2	11	12 1/2	14	15	16	17 1/2	20
Face to Face of Screw'd Ends.....	6 1/4	6 1/4	6 1/2	6 3/4	7	7	9 1/4	10	10 3/4	11 1/4	11 3/4	12 1/4					
Approximate Weight (lbs.).....	9	16	18	20	22	23	65	75	85	95	110	125	145	165	200	200	250
Price	27.00	27.00	29.00	30.00	36.00	42.00	58.00	70.00	80.00	90.00	120.00	160.00	200.00	275.00	300.00	300.00	435.00

For pressures above 125 pounds, special net prices on application.

Specify boiler pressure.



“ECLIPSE” AIR REGULATING VALVE



Fig. 121.

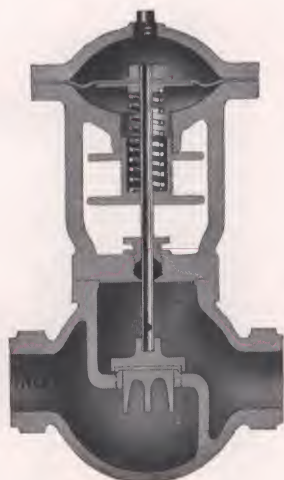


Fig. 121.

These Valves are designed to automatically regulate the pressure of air or water.

They are an ideal Valve for gas or air, and the small sizes up to 2½ inches for water.

By referring to the sectional cut you will notice that the stem from the disc of the Valve to the diaphragm is hollow. Air or water passes through this stem to the top of the diaphragm, which is held up by a spring. As soon as the pressure overcomes the tension of the spring the disc seats and remains seated until the pressure goes down, when the spring raises the disc and permits of a further flow of air or water. Also made double seated for steam and as pump governor.

Price List

SIZE	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	10	12
Face to Face	6¼	6¾	7	7½	8	9	9½	10	11	11½	12	12½	13	13½	14	16	18
Diameter of Flange	20	25	26	28	30	33	35	40	45	50	55	60	65	70	75	85	95
Approx. Weight, lbs.	20	25	26	28	30	33	35	40	45	50	55	60	65	70	75	85	95
PRICE	\$21.00	\$22.00	\$23.00	\$24.00	\$25.00	\$30.00	\$35.00	\$42.50	\$52.50	\$60.00	\$70.00	\$75.00	\$100.00	\$125.00	\$155.00	\$220.00	\$350.00

When ordering specify initial pressure and pressure to which it is to reduce.

If for water, state whether for cold or hot.

For pressures above 125 pounds, prices on application.

Eclipse

THE "ECLIPSE" AUTOMATIC WATER REGULATOR



Fig. 125.

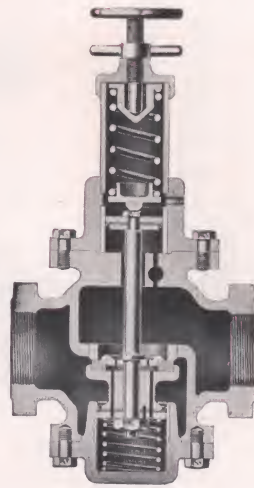


Fig. 125.

These Valves are designed to automatically regulate the pressure of water. When ordering give full particulars: The pressure carried and the pressure to which it is to reduce.

These regulators are guaranteed to work perfectly. Specify whether for hot or cold water.

Smaller sized Valves for water, use the Fig. 121 on preceding page.

The weights and dimensions may vary slightly, as we can not always make them exact. If positive measurements are wanted to a fraction of an inch, can furnish on application from actual measurement of each valve.

Price List and Table of Dimensions

SIZE.....	3	3½	4	4½	5	6	7	8	9	10	12
Face to Face.....	10	10¾	11½	12	12	13½	14½	17½	19¼	22	27½
Approx. Weight, lbs....	80	90	100	150	150	180	290	400	550	650	950
PRICE.....	\$48.00	52.50	70.00	80.00	90.00	120.00	160.00	200.00	250.00	300.00	435.00

For pressures above 125 pounds, prices on application.



"ECLIPSE" CENTRAL STATION REDUCING VALVE

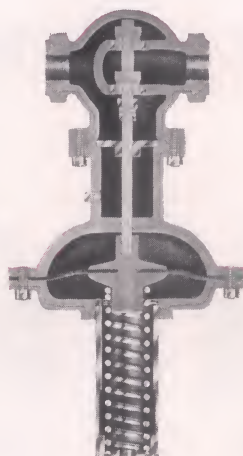


Fig. 61.

This Valve is especially adapted for low pressure heating other than vacuum systems. It is very sensitive and absolutely reliable and is intended to reduce from boiler pressure to 6 oz. to a few pounds.

The simplicity of design and absence of weights and levers will appeal to all users of reducing valves. The large diaphragm makes the valve extremely sensitive and accurate.

This is an ideal valve for use in central heating systems. For other duties see our Figs. 110, 81, 71, 91, 211, 95 and 181.

Price Lists and Tables of Dimensions

Fig. 61—Valves Straight sizes

Diameter of Ports.....	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Face to Face, Standard.....	7 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	15 1/4	16 1/4	17 1/4	18 1/4	19 1/4	20 1/4	21 1/4	22 1/4	23 1/4	24 1/4
Diam. of Standard Flanges...	6	7	7 1/2	8 1/2	9	9 1/2	10	10 1/2	11 1/2	12	12 1/2	13 1/2	14 1/2	15 1/2	16 1/2	17 1/2	18 1/2
Face to Face, Extra Heavy...	7 1/2	9 1/2	10 1/2	11 1/2	12 1/2	13 1/2	14 1/2	15 1/2	16 1/2	17 1/2	18 1/2	19 1/2	20 1/2	21 1/2	22 1/2	23 1/2	24 1/2
Diam. of Ex. Heavy Fl'ges...	6 1/2	7 1/2	8 1/2	9	9 1/2	10	10 1/2	11 1/2	12 1/2	13 1/2	14 1/2	15 1/2	16 1/2	17 1/2	18 1/2	19 1/2	20 1/2
Face to Face of Screw'd Ends...	6 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	15 1/4	16 1/4	17 1/4	18 1/4	19 1/4	20 1/4	21 1/4	22 1/4	23 1/4
Approximate Weight (lbs.)...	25	26	28	30	33	35	37	40	45	50	55	60	65	70	75	80	85
Price	23.00	23.00	24.00	25.00	30.00	35.00	42.50	52.50	60.00	70.00	75.00	100.00	125.00	150.00	180.00	210.00	275.00

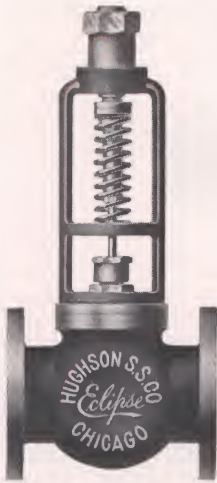


Fig. 190.

STEAM PUMP REGULATOR

Fig. 190

VACUUM PUMP REGULATOR

Fig. 101

Shown on page 38.

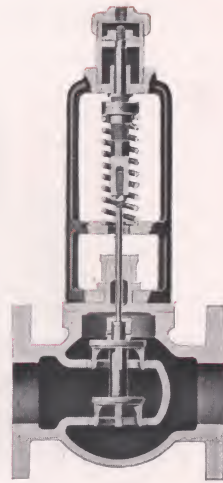


Fig. 190.

For fire, tank, elevator, air and water works pumps, where it is necessary to maintain a constant pressure.

The Regulator is adjusted by spring, and does not have the unsightly appearance that regulators have that are controlled by weight and lever; then they are not so liable to be handled and changed.

This Regulator is guaranteed to work perfectly and built to conform to underwriter specification.

Give steam pressure, also what pressure is desired to be carried on water main.

Price List

Size	1	1¼	1½	2	2½	3	4	5	6
Price, each.....	\$30.00	\$35.00	\$42.00	\$50.00	\$60.00	\$75.00	\$100.00	\$135.00	\$180.00

Made also in angle pattern. Please specify which pattern is wanted.

Prices on valves for super-heat on application.

Eclipse

THE "ECLIPSE" PNEUMATIC BACK PRESSURE VALVE

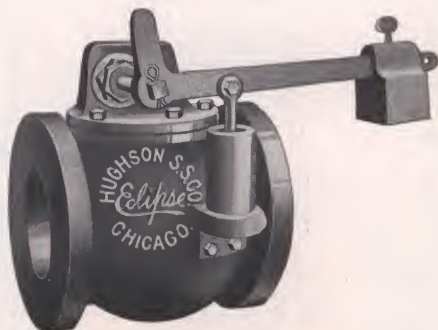
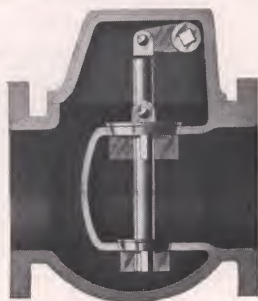


Fig. 51.

These Valves are two-seated and provided with air cushion, which prevents any hammering and makes it a noiseless Valve. The Valves are adapted for exhaust pipes of non-condensing plants only.

Specify whether Valves are to be used in a horizontal or vertical position. The dash pot has a piston fitted with a Valve, which makes a perfect cushion and requires no oil or other liquid. See that dash pot is kept clean.

Sectional View Horizontal Pattern.



Price List and Table of Dimensions.

Size	2	2½	3	4	5	6	7	8
Face to Face	7½	7½	9¼	10	11¼	12	17	17½
Approximate Weight, lbs.	40	48	55	85	105	125	140	290
Price	\$14.00	\$16.00	\$18.00	\$25.00	\$40.00	\$60.00	\$80.00	\$100.00

Larger sizes use Combination "Eclipse" Valves.

SPRING CONTROLLED BACK PRESSURE VALVE

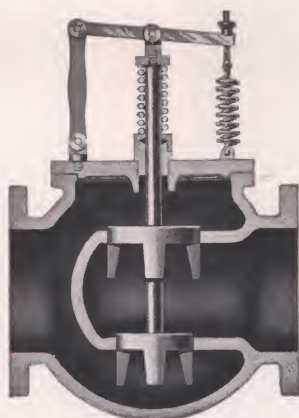


Fig. 240.

This Valve is a two-piston valve with discs of just enough variation to require only a light spring to give the proper adjustment.

It is an ideal valve to use on the exhaust line of a non-condensing system where the exhaust is used in heating or drying.

The Valve is absolutely noiseless, can be used in any position and it is impossible to damage seats or discs.

For use in Vacuum Systems our No. 220 and No. 225 Valves should be used.

Prices and Dimensions.

Size of Valve, inches.....	4	5	6	7	8	10	12	14	16	18	20
Face to Face, inches.....	12½	14	15½	17½	18½	23½	25	27	30	33½	37½
Center to Ex. Top, inches.	11	11½	12¼	12¼	12½	16¼	17½	19½	21¼	23½	25½
Center to Ex. Bottom, in.	11½	12	12½	13	13¼	16½	18	19½	21	24	26
Diameter of Body, inches.	10	12	13½	15	16½	21½	24	26	29½	33¼	37
Length of Lever, inches.	30	30	30	36	36	42	50	60	60	60	60
Approximate Weight, lbs.	100	120	200	285	325	625	750	1050	1300	1500	2000
Price	40.00	55.00	75.00	100.00	130.00	200.00	275.00	345.00	465.00	600.00	750.00

Larger sizes, prices on application. State back pressure.

Eclipse



Fig. 220. Horizontal.

It is constructed entirely of metal.

It is the best Valve to use on a condensing, vacuum or pressure heating system. Will maintain the highest vacuum or highest back pressure equally well; can be changed from one service to the other instantly by opening or closing a small controlling valve.

The Valve practically contains only one working part and the arrangement is such that it is impossible for the Valve to chatter under any condition.

Used as a Relief Valve, it has all the advantages of a single seated water sealed valve, with sufficient dashpot area to stop any violent action without impairing its sensitiveness.

By opening the controlling valve, it is instantly converted into a semi-balanced valve of the best type, requiring a very small amount of weight to maintain any desired back pressure.

In ordering, state for what service the Valve is to be used and if for non-condensing system, the amount of back pressure wanted.

THE "ECLIPSE" RELIEF AND BACK PRESSURE VALVE, FOR CONDENSING OR NON-CONDENSING PLANTS

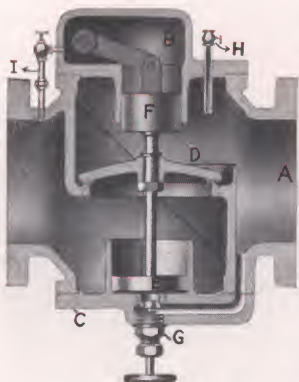
This is the most durable, effective and sensitive Valve made.

It is absolutely noiseless.

It is tight under vacuum.



Fig. 225. Vertical.



THE OPERATION OF THE VALVE

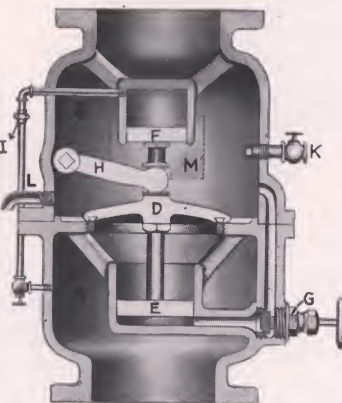
Running With Back Pressure

Open the controlling valve "G." This opens the by-pass, clapper "D" and piston "E" forming a semi-balanced valve, and piston "F" acts as a dash pot to stop violent action. Counterbalance the back pressure wanted by placing the necessary weights on the long end of the outside lever. If the valve chatters, throttle the by-pass a little by closing the controlling valve "G" until it works quietly. This valve is so sensitive that it will control the pressure to a small fraction of a pound.

OPERATION OF VALVE

Running Condensing

Close controlling valve "G." Piston "E" will now act as a dash-pot in cylinder "E," in conjunction with dash-pot "F," forming the means of a perfect control of clapper "D." For water seal, connect running water to valve "K" and open "K" until a slight drip at "L" shows there is sufficient water for proper seal. The lever is now used to open and close valve only. In case vacuum breaks the valve will open immediately, relieving the engine, and will stay open without chattering on its seat. Hang weights sent with valve on short arm of lever to balance weight of moving parts, valve will open quicker.



PIPE WORK

"I" is furnished only when Valve has to carry over 5 lb. Back Pressure.
Valves drilled to template. No extra charge.

Prices and Dimensions

Horizontal

Size of Valve, inches.....	4	5	6	7	8	10	12	14	16	18	20
Face to Face, inches.....	12½	14	15½	17½	18¾	23¾	25	27	30	33½	37½
Center to Ex. Top, inches.....	11	11½	12¾	12¾	12¾	16¾	17½	19½	21¼	23½	25½
Center to Ex. Bottom, in.....	11½	12	12¾	13	13¼	16¾	18	19½	21	24	26
Diameter of Body, inches.....	10	12	13½	15	16½	21½	24	26	29½	33¼	37
Length of Lever, inches.....	30	30	30	36	36	42	50	60	60	60	60
Approximate Weight, lbs.....	100	120	200	285	325	625	750	1050	1300	1500	2000
Price.....	40.00	55.00	75.00	100.00	130.00	200.00	275.00	345.00	465.00	600.00	750.00

Vertical

Face to Face, inches.....	16¾	19½	23¼	26¾	27¾	36	41¼	43¼	48	52¾	57¼
Diam. of Middle Fl'ge, in.....	9¾	11½	13½	16½	18	21¼	24½	27	31	33	36¾
Length of Lever, inches.....	30	30	30	36	36	42	50	60	60	60	60
Approximate Weight, lbs.....	90	130	200	340	375	650	1000	1150	1750	2100	3000
Price.....	40.00	55.00	75.00	100.00	130.00	200.00	275.00	345.00	465.00	600.00	750.00

Prices and Dimensions of large Valves furnished on application, also on angle type.



HUGHSON AUTOMATIC EXHAUST RELIEF VALVE

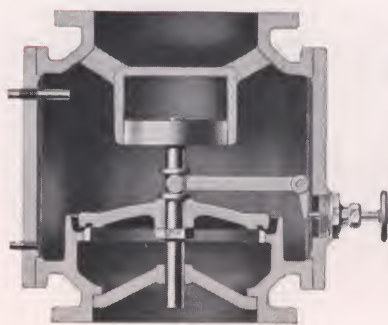


Fig. 230.
Vertical.

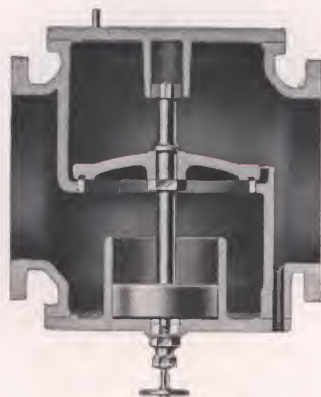


Fig. 235.
Horizontal.

Figures 230 and 235 Exhaust Relief Valves are intended for use on condensing systems only, and are for direct relief to the atmosphere of any accumulated pressure which may arise on the condenser due to loss of vacuum.

Should the vacuum break, the valve will instantly open and allow the exhaust to escape to the atmosphere. As soon as the vacuum is restored, valve will close. We have large dash pots, so that there is no danger of hammering. The ports are the full opening of the pipe. These valves are all made of the best material. All working parts are bronze and the seat itself of Babbitt, thereby ensuring a tight fit under high vacuum.

Also furnished with floor stands if desired. Prices on application.

Prices and Dimensions.

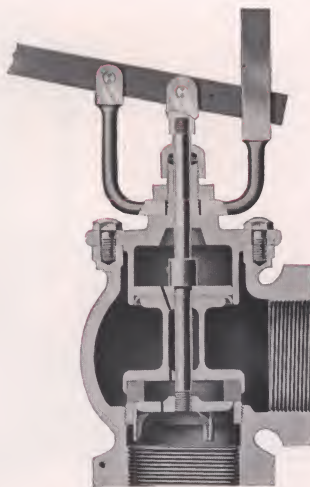
Size of Valve, inches.....	4	5	6	7	8	10	12	14	16	18	20
Face to Face, inches.....	12½	14	15½	17½	18½	23½	25	27	30	33½	37½
Center to Ex. Top, inches.	11	11½	12¼	12¼	12½	16¼	17½	19¼	21¼	23½	25½
Center to Ex. Bottom, in..	11½	12	12½	13	13¼	16½	18	19½	21	24	26
Diameter of Body, inches.	10	12	13½	15	16½	21½	24	26	29½	33¼	37
Length of Lever, inches...	30	30	30	36	36	42	50	60	60	60	60
Approximate Weight, lbs.	100	120	200	285	325	625	750	1050	1300	1500	2000
Price.....	40.00	55.00	75.00	100.00	130.00	200.00	275.00	345.00	465.00	600.00	750.00

Larger sizes, prices on application, also on angle type.

FLOAT VALVE



Fig. 201.



Inlet.

For automatically controlling the supply of water to a tank. The rise and fall of the water operating a float connected to valve by lever.

The Valve has a full area and is cushioned so it cannot hammer.

When ordering specify whether for hot or cold water.

Price List

Size, Inches.....	2	2½	3	3½	4	4½	5
Price, Each.....	\$30.00	\$35.00	\$42.50	\$50.00	\$60.00	\$70.00	\$75.00
Size, Inches.....	6	7	8	9	10	12	
Price, Each.....	\$100.00	\$175.00	\$185.00	\$275.00	\$275.00	\$350.00	

Floats Extra.

"ECLIPSE" BALANCE VALVE

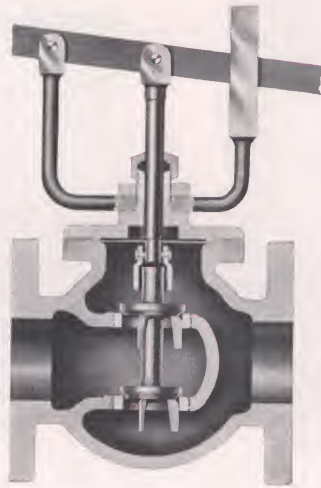


Fig. 200.

For use in tank service or for controlling flow of steam, water or other fluid to pump or other device in connection with a float. Will operate against high or low pressure. Being perfectly balanced, requires only a small float. Made with piston valve or double seated valve. All metal. This valve when used in connection with a Damper Regulator makes a positive Regulating Valve.

Price List

Size	¾	1	1¼	1½	2	2½	3	4	5	6	8
Price	\$6.50	\$8.00	\$9.50	\$11.00	\$14.00	\$19.00	\$25.00	\$35.00	\$45.00	\$55.00	\$75.00

Dimensions are the same as the No. 110 Valve, page 5.

Floats extra.

Specify whether for steam, hot or cold water.

"ECLIPSE" AUTOMATIC PUMP GOVERNOR



Fig. 170.

In connection with pump will automatically return condensation from heating system to boilers.

This Governor will control the speed of the pump so that it will be in proportion to the amount of condensation to be returned, and prevents the pump running away and insures a good circulation in the heating system.

WATER LINE GOVERNOR

This Governor also furnished with a balance valve on the discharge line having a capacity equal to that of the return pipe. The opening and closing of the discharge is gradual, preventing sudden rushes. When used as water line governor the steam valve shown above is not furnished.

Prices on water line governor on application.

Always give size of main return.

Price List Fig. 170 Pump Governor

Number	1	2	3	4
Height Over All.....	31	36	41	42
Inlet and Outlet.....	2	2½	3	4
Outside Diam. Flange.....	17	21	25	25
Steam Valve.....	¾	1	1½	2
Cap. Sq. Ft. Radiation.....	10000	20000	30000	45000
Weight	385	400	500	550
Price	\$100.00	\$130.00	\$150.00	\$200.00

Eclipse



Fig. 150

"ECLIPSE" LOW WATER INDICATOR

The pipe runs through the top of the boiler within three or four inches of the flues, or closer if desired. As long as the bottom of the pipe is covered with water the fusible plug remains intact. As soon as the water gets below this point, the Indicator, being in a perpendicular position, drains itself of water, steam supplants it, the plug fuses, and the steam continues to escape until the valve closes. The valve is always locked open, which is a safeguard to the engineer, who is held responsible for explosions and burnt boilers.

It has been the custom to use a half-inch pipe inside the boiler. Our experience has been that these are too small. We advocate the using of a larger pipe, and we furnish the indicator with a $1\frac{1}{4}$ -inch to 1-inch bushing, or even larger, if desired, without additional cost. This permits of the use of a larger pipe in boiler.

In nearly every case, where we have taken off the small pipes, we have found them completely stopped up, thereby rendering the Indicator absolutely useless. By opening the air cock on side, the engineer can always tell if pipe is free.

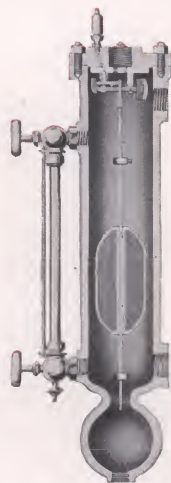
Give boiler pressure.

Price, Each, \$10.00.



Fig. 142.

THE "ECLIPSE" SAFETY WATER COLUMN



Sectional View.

Is designed to take the place of the ordinary combination. We have aimed to make this Column as simple as possible and a reference to the sectional cut will show that we have done so.

They are designed for both high and low water alarm. They have few intricate parts and are absolutely reliable. We make them with any variation between the alarms for the Hazleton, Cahall and similar boilers. These Columns are adapted for either right or left hand.

All parts are attached to the top flange and can be easily removed.

Give boiler pressure carried.

Price List

No. 1	Medium, glass 12 in., with trimmings, Weight 75 lbs.....	\$30.00
No. 2	Large, glass 15 in., with trimmings, Weight 90 lbs.	\$35.00

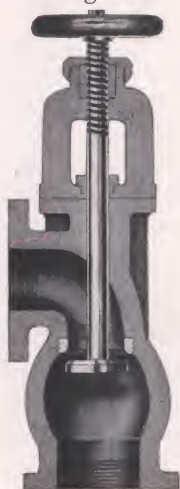
For pressure above 150 pounds, special prices on application.

Eclipse

THE ECLIPSE BLOW-OFF VALVE



Fig. 162.



Inlet.

The only regrounding Blow-off Valve made, that can be reground with full boiler pressure on the valve.

The stem and disc is Phosphor Bronze made in one solid piece.

The pressure is always against the disc.

Should at any time scale or sediment become imbedded on the seat, by releasing the nut on top of yoke and turning the wheel the screw box in the housing will ride out on the stem, permitting the disc and seat to be ground, by turning the hand wheel back and forth. The pressure being against the disc it will hold the disc against the seat, as soon as Valve is tight screw the nut down forcing the screw box back to place and the Valve is ready for operation.

Another good feature of the Valve is that by opening against the pressure you loosen the mud and sediment which accumulate in the blow-off pipe and allows the steam to pass through without hammering the pipe or Valve, and run the risk of breaking the pipe or Valve which has caused so many accidents.



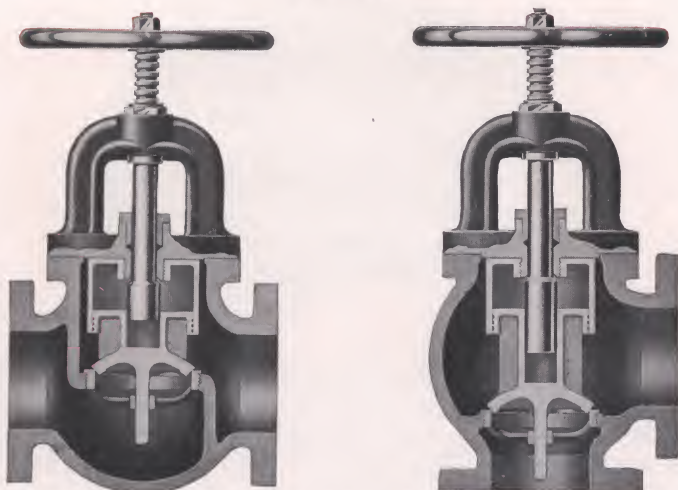
Price List Fig. No. 162

Size, inches.....	1	1¼	1½	2	2½	3	4
Weight, Flanged, lbs.....	10	12	15	27	60	80	100
Weight, Screwed, lbs.....				22	47	67	
Price, each.....	\$3.50	\$5.00	\$7.00	\$10.00	\$20.00	\$30.00	\$50.00

For pressures up to 250 pounds. Prices for steel body Valves for superheated steam on application.

Specify boiler pressure.

EXTRA HEAVY AUTOMATIC STOP AND CHECK VALVES



Globe and Angle Pattern

Suitable for Working Pressure of 250 Pounds

Valves should be placed between boiler and header. When so placed will equalize the pressure between different batteries, they remaining closed as long as the individual boiler pressure is lower than that of the header. They will open up when boiler pressure equals the header pressure and remain open without chattering while equal pressure exists. They automatically cut out a boiler in case a tube blows out. They prevent steam being turned into cold boiler when being repaired.

Price List and Dimensions

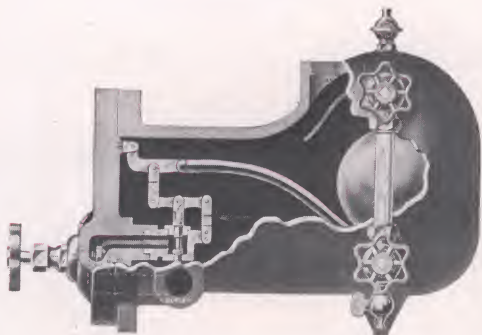
Diameter of Port	Face to Face of Ports Flanged	Center to Face Flanged	Diameter of Flanges	Thickness	No. of Bolts	Size of Bolts	Diameter of Bolt Circle	Diameter of Hand Wheel	Price Each Flanged
4	14	7	10	1 1/4	8	3/4	14	7 1/8	\$ 60
5	15 3/4	7 7/8	11	1 1/8	8	5/8	15	9 1/4	80
6	16 1/2	8 3/4	12 1/2	1 7/8	12	5/4	16	10 3/4	95
7	19 1/4	9 5/8	14	1 1/2	12	7/8	20	11 7/8	120
8	21	10 1/2	15	1 5/8	12	7/8	24	13	145
9	22 3/4	11 3/8	16	1 3/4	12	7/8	26	14	210
10	24 1/2	12 1/4	17 1/4	1 7/8	16	7/8	28	15 1/4	240
12	28	14	20	2	16	7/8	30	17 3/4	360

Above prices on cast iron and brass trimmings.

Prices on steel, suitable for super-heated steam, on application.



THE "ECLIPSE" STEAM TRAP



This trap, having a perfectly balanced Valve, is adapted for either a high or low pressure, and continuous flow, and is preferable to an intermittent trap, as in that style the Valve has to be made for different pressures, while with a balanced Valve the pressure makes no difference. On an intermittent trap for high pressure the opening in the Valve has to be decreased, which increases the liability of sticking and clogging.

The floats we use in these traps are tested to 300 pounds pressure. The Valve proper is made of the best steam metal. All parts are bolted to cover and can be removed without disconnecting the pipes. The trap is provided with a by-pass for blowing off and cleaning out any scale or sediment. All traps are provided with a water gauge.

Condensation enters the trap and raises the float, the Valve remaining closed until the water raises two inches above the Valve, when the float opens the Valve and discharges, and will continue to do so as long as any condensation enters, as soon as it stops Valve closes. The Valve of the trap always being under a water seal of two inches.

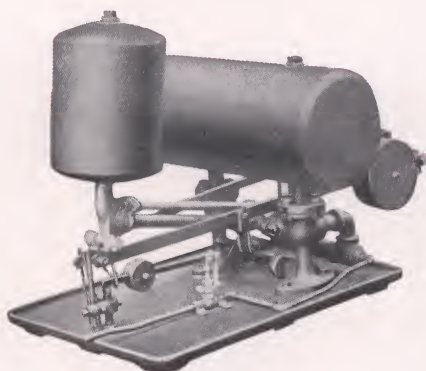
The Valve on this trap has the capacity of the inlet and discharge pipe, which the intermittent traps do not, and permits of a smaller trap being used.

Standard traps are for 125-lb. pressure. For a greater pressure they are made extra heavy, for which an additional charge of 25% is made.

When ordering always state pressure trap is desired to work at.

Number	00	0	1	2	3	4
Inlet	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Outlet	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Capacity ft. 1-inch Pipe.....	2000	3000	7000	15000	20000	30000
Price, each	\$17.50	\$20.00	\$30.00	\$45.00	\$60.00	\$80.00

CHICAGO STEAM TRAP



The Chicago Steam Traps are the greatest economizers of any traps at the present developed, having positive capacity and absolute surety of action. Unlike all Tilting Traps they differ in unlimited capacity of the main body, which is fixed and unmovable, the operating tanks and trunnions being very small, which are packed with Metallic Packing and never burns out. This high speed packing stops all troubles from packing. The trunnions are perfectly balanced, requiring the minimum amount of pressure on the glands to prevent leaking, and at the same time only a trifle of weight on same as compared with all Tilting Traps which have to enlarge trunnions and tanks as their capacity increases to carry the extra weight.

Hot condensed water is saved and returned to the boiler, with our Traps using only the amount of steam necessary to displace the water in the fixed tank. This means less than one-tenth the steam required to operate a pump besides saving the heat in the water.

These Traps are applicable to working steam pressure up to 250 pounds, and are designed with a larger factor of safety. As all working parts are on the outside, it is simply and readily inspected. The tanks are all acetylene welded and galvanized.

We build Special Vacuum Traps for Turbines which are absolutely reliable.

PRICE LIST

	Inlet	Steam Pipe	Capacity in lbs. per hour	Price
A	1	1	1,783	\$ 90.00
B	1¼	1	3,180	154.00
C	1½	1	4,583	193.00
D	2	1	8,158	247.00
E	2½	1	12,750	353.00
F	3	1	18,358	495.00

Capacities based on the flow of water at 100 feet per minute For Kilns and moist goods divide by (2); Laundries, Brick Kilns, etc., divide by (3); for Stacks and Blowers divide by (5).



ECLIPSE SEPARATORS FOR LIVE, EXHAUST STEAM, OIL.

These Separators have been in use a number of years and are giving the very best of satisfaction.

The steam entering Separator, strikes the baffle plate, the condensation or oil passes to the receiver at bottom, and the dry steam passes around and does not come in contact with the separated oil or condensation.

The Separators are designed and laid out with a view of obtaining as large a baffle surface and internal area as necessary and to decrease the velocity of the steam.

When oil Separators are for use in vacuum systems it is necessary to provide special apparatus adapted to the conditions.

We must know pounds of steam passing through the separator and vacuum carried.

These Separators, used in connection with our Eclipse Trap, make one of the best automatic separators on the market.

Our prices include trimmings and Counter Flanges.

We also make Receiver type Separators. Prices quoted on application.

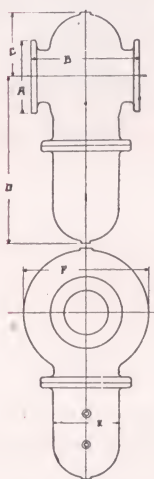
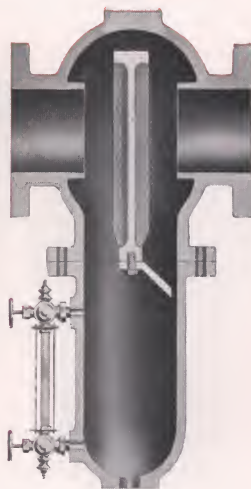
Eclipse



STANDARD HORIZONTAL ECLIPSE SEPARATORS

Fig. 61.

Pattern C.



For Live or Exhaust Steam and Oil.

Prices and Dimensions of Horizontal "Eclipse" Separators.

Pattern C. 1 in. to 12 in. 1 in. to 2 in. screwed.

2½ in. to 12 in. flanged.

SIZE	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
A	5¼	5¼	7½	7½	10	10	10¾	11½	13	15	16	18½	20	22	23	26
B	1¾	1¾	2¼	2¼	4¾	4¾	4¾	5¾	6¾	7¾	8¾	9¾	10¾	12¾	13¾	15½
C	6¾	6¾	10½	10½	17	17	17½	18½	19½	23½	25½	27½	32	34	39	43
D	3¼	3¼	5	5	5	5	5	5½	5½	8¾	8¾	10	11¾	11¾	14	16
E	3¼	3¼	5	5	8¼	8¼	9	10	12	14¼	16	18	20¼	24	26	30
F	3¼	3¼	5	5	8¼	8¼	9	10	12	14¼	16	18	20¼	24	26	30
Price	-----	\$25.00	27.50	30.00	40.00	45.00	50.00	60.00	70.00	75.00	80.00	110.00	125.00	160.00	200.00	250.00

For extra heavy add 15 per cent. Prices on steel or semi-steel Separators on application.

Eclipse

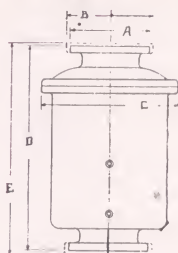
VERTICAL STANDARD SEPARATORS



Fig. 65.

Live, Exhaust Steam
and Oil.

"B" Pattern.

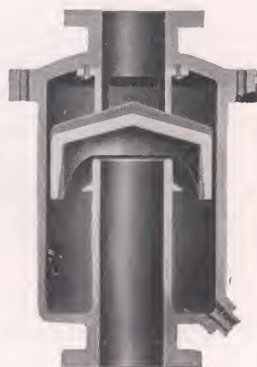
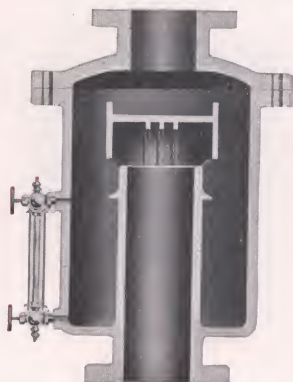


Eclipse
Vertical
Separators

Price List and Dimensions.

SIZE	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
A	Ser'd	7	7½	8½	9	9½	10	11	12½	13½	15	16	19
B		7½	8½	9	10	10½	11	12½	14	15	16	17	20
C	5½	12½	12½	13½	15½	16	17½	19½	21	23	24	27½	33
D	13½	20	20	21½	23	24	25	27½	30	32½	35	37	40
E		20½	20½	22½	23½	24½	25½	28½	30½	33½	36½	38½	41½
Drip	½	½	¾	¾	1	1	1	1	1¼	1¼	1¼	1½	1½
Price	\$40.00	45.00	50.00	60.00	70.00	75.00	80.00	110.00	125.00	160.00	180.00	200.00	250.00

15 per cent additional for ex. heavy



Horizontal.



Pattern D.

**RECEIVER
TYPE
SEPARATORS**

For pressures up to
250 pounds.

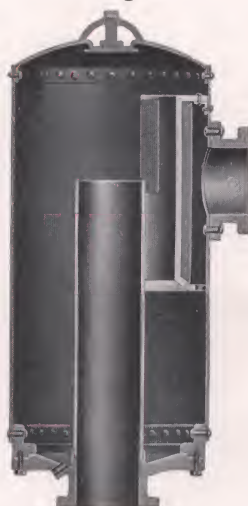
Horizontal.



Pattern H.

STEEL "ECLIPSE" SHELLS

Angle



Pattern F.

Fitted with Cast
Iron, Semi-Steel or
Steel Nozzles
as desired.

State size of Pipe,
type Separator
wanted, service and
working pressure.

Dimensions and
prices on
application.

Vertical



Pattern G.



ECLIPSE VACUUM PUMP REGULATOR

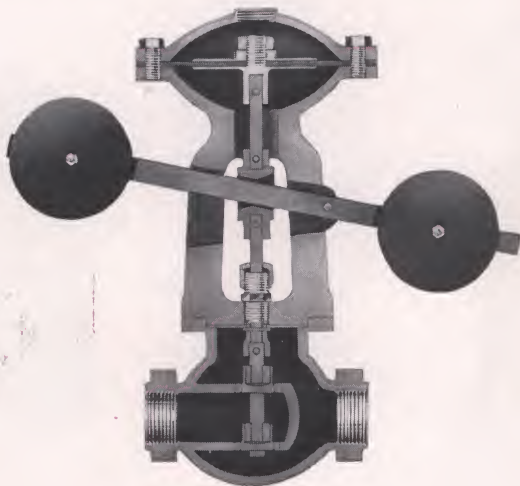


Fig. 101.

The "Eclipse" Vacuum Pump Regulator is designed to control the pump or other appliance used to create a vacuum on heating systems or wherever it is desired to control steam admission due to a change in the vacuum to be maintained or to maintain a constant vacuum in the system.

The valve is of balanced type. The steam is controlled by the action of the vacuum on the large diaphragm.

This valve also furnished with spring control if desired. Prices on application.

Price Lists and Tables of Dimensions

Fig. 101—Valves Straight Sizes

Diameter of Ports.....	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Face to Face, Standard.....					7 1/4	9 1/4	10	11	11 1/4	11 1/4	12 1/4	13 1/4	14 1/4	15 1/4	16 1/4	18 1/4	20
Diam. of Standard Flanges...					6	7	7 1/2	8 1/2	9	9 1/2	10	11	12 1/2	13 1/2	15	16 1/2	19
Face to Face, Extra Heavy...					7 1/2	7 3/4	10	10 3/4	11 1/2	12	12	13	14 1/4	15 1/2	19 1/4	19 1/2	27 1/2
Diam. of Ex. Heavy Flges....					6 1/2	7 1/2	8 1/2	9	10	10 3/4	11 1/4	12 1/4	14	15	16	17 1/2	20
Face to Face of Screw'd Ends	6 1/4	6 1/4	6 1/4	6 3/4	7	7	9 1/2	10	10 3/4	11 1/4	11 1/4	12 1/4	14	15	16	17 1/2	20
Approximate Weight (lbs.)...	25	26	28	30	33	35	70	80	100	110	125	150	165	180	210	220	275
Price	23.00		24.00	25.00	30.00	35.00	42.50	52.50	60.00	70.00	75.00	100.00	125.00	155.00	210.00	220.00	350.00

KEARNS PATENT POP SAFETY AND RELIEF VALVES



Sectional View



No. 1 Brass
"Stationary"



Iron Relief

The Kearns Valve is an absolute Safety Valve; it opens precisely at the fixed working pressure; allows no excess of pressure above that limit and closes promptly with the smallest possible loss of pressure. All seats are made of the best Bronze. Adopted by the Board of Supervising Inspectors of Steam Vessels as the most sensitive, effective and durable Safety Valve made. Every valve is subjected to a thorough steam test.

Price List and Sizes—Marine, Stationary and Relief Iron Body Valves

Size	2	2½	3	3½	4	4½	5	5½	6
Horse Power	35	50	75	100	120	140	170	200	225
Grate Surface, Sq. Feet	9.42	14.72	21.20	28.86	37.69	47.70	58.90	71.27	84.82
Diameter of Flanges	6	7	8	9	10	10	11	11	12
Price	\$40.00	\$50.00	\$60.00	\$75.00	\$90.00	\$120.00	\$125.00	\$140.00	\$175.00

Brass Pop Safety and Relief Valve—All Brass and All Screwed

Size	¾	1	1¼	1½	2	2½	3
Grate Surface, Sq. Ft.	1.32	2.35	3.68	5.30	9.42	14.72	21.20
Price Without Hand Wheel	\$10.00	\$12.00	\$15.00	\$20.00	\$30.00	\$45.00	\$60.00
Price With Hand Wheel	15.00	17.00	22.00	30.00	40.00	55.00	70.00

When ordering, state Grate Surface and Highest Working Pressure.

By M.H.Moll

